



CALS TEST NETWORK

# AFCTN Test Report 94-027

AFCTB-ID  
93-092



## Technical Raster Transfer

using:



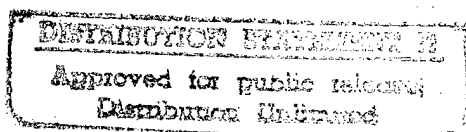
## Cubic Defense Systems' Data



## MIL-R-28002A (Raster)



## Quick Short Test Report



21 September 1993



Prepared for

Electronic Systems Center

DTIC QUALITY INSPECTED 8

19960822 154

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**Quick Short Test Report**

**21 September 1993**

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AFCTN 94-027

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## **1. Introduction**

### **1.1 Background**

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

## 1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Cubic Defense Systems' interpretation and use of the CALS standards in transferring technical Raster data. Cubic Defense Systems used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

## 2. Test Parameters

**Test Plan:** AFCTB 93-092

**Date of Evaluation:** 21 September 1993

**Evaluator:** George Elwood  
Air Force CALS Test Bed  
DET 2 HQ ESC/AV-2P  
4027 Colonel Glenn Hwy  
Suite 300  
Dayton OH 45431-1672

**Data Originator:** John Akin  
Cubic Defense Systems  
9333 Balboa Avenue  
San Diego CA 92186-5587  
(619) 277-6780 X 2785

**Data Description:** Technical Raster Test  
3 Document Declaration files  
14 Raster files

**Data Source System:** 1840

**HARDWARE** Unknown

**SOFTWARE** Unknown

**Raster**

**HARDWARE** Unknown

**SOFTWARE** Unknown

**Evaluation Tools Used:**

**MIL-STD-1840A (TAPE)**

SUN 3/280

AFCTN Tapetool v1.2.10 UNIX

XSoft CAPS/CALS v40.4

PC 486/50

AFCTN Tapetool v1.2.10 DOS

**MIL-R-28002 (Raster)**

SUN SparcStation 2

ArborText g42tiff

Carberry CADLeaf Plus v3.1

AFCTN validg4

AFCTN calstb.475

AFCTN xrastb.sun4

IGES Data Analysis (IDA) IGESView v3.0

Island Graphics IslandPaint v3.0

PC 486/50

IDA IGESView Windows

Inset Systems HiJaak Window v1.0

**Standards**

**Tested:**

MIL-STD-1840A

MIL-R-28002A



### **3. 1840A Analysis**

#### **3.1 External Packaging**

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in barrier sheet material as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density as, required by MIL-STD-1840A, para. 5.3.1. It was also noted that the tape reel had two cracked sections. No small parts were found in the packing material so it is assumed that the tape reel had these defects before it was sent. Enclosed in the box was a packing list showing all files recorded on the tape.

#### **3.2 Transmission Envelope**

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

##### **3.2.1 Tape Formats**

The tape was run through the AFCTN *Tapetool* v1.2.10 utility. No errors were encountered while evaluating the contents of the tape labels.

A note was reported on the tape label version. MIL-STD-1840A permits the use of both version three and four. The use of the most current standard should be used and noted.

The tape was read using XSoft's *CAPS read1840A* utility with no reported errors.

The tape's physical structure meets the MIL-STD-1840A requirements.

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### **3.2.2 Declaration and Header Fields**

No errors were found in the Document Declaration file or the data file headers. This portion of the tape meets the requirements defined in CALS MIL-STD-1840A.

## **4. IGES Analysis**

No Initial Graphics Exchange Specification (IGES) files were included on this tape.

## **5. SGML Analysis**

No Standard Generalized Markup Language (SGML) files were included on this tape.

## **6. Raster Analysis**

The tape contained 14 Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported all files meet the CALS MIL-R28002A specification.

The files were read into the AFCTN *xrastb.sun4* viewing utility. All files could be viewed without a reported problem. All files appeared to be clean with no orphan pixels noted. It was noted that all of the images were scanned at a slight angle.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The files were converted using ArborText's *g42tiff* utility without a reported error. The resulting files were read

into Island Graphics' *IslandPaint*, displayed, and a sample printed.

The Raster files were read into Carberry's *CADLeaf* software. The software was able to read and display the images on the screen without a reported error.

The files were read into IDA's *IGESView*. This software was able to read, display, and print the files without a reported error. *IGESView for Windows* read and displayed the files without a reported error.

All files were read into Inset Systems' *HiJaak for Windows* without a reported error.

All files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were viewed using Rosetta Technologies' *Preview* without a problem. A sample file was printed.

The Raster files meet the CALS MIL-R-28002A specification.

## **7. CGM Analysis**

No Computer Graphics Metafile (CGM) files were included on this tape.

## **8. Conclusions and Recommendations**

The tape from Cubic Defense Systems had no reported errors in the physical structure. The document declaration and header files were also without a reported error. This portion of the tape meets the CALS MIL-STD-1840A requirements.

The Raster files meet the CALS MIL-R-28002A specification.

The tape submitted by Cubic Defense Systems meets the CALS MIL-STD-1840A requirements.

## 9. Appendix A - Tapetool Report Logs

### 9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Tue Sep 21 16:16:52 1993

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set020

Page:  
1

File Name Extracted	File Type	Record Format/ Selected/ Length	Block Length/Total
D001 Extracted	Document Declaration	D/00260	02048/000001
D002 Extracted	Document Declaration	D/00260	02048/000001
D003 Extracted	Document Declaration	D/00260	02048/000001
D001R001 Extracted	Raster	F/00128	02048/000010
<<<<< PART OF LOG FILE REMOVED HERE >>>>>			
D001R007 Extracted	Raster	F/00128	02048/000007
D002R001 Extracted	Raster	F/00128	02048/000015

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

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D002R006 Extracted	Raster	F/00128 02048/000012
D003R001 Extracted	Raster	F/00128 02048/000058

Catalog Process terminated normally.

## 9.2 Tape Evaluation Log

CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Tue Sep 21 16:16:39 1993

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01

3

Label Identifier: VOL1

Volume Identifier: CALS01

Volume Accessibility:

Owner Identifier:

Label Standard Version: 3

\*\*\* NOTE (ANSI X3.27; 8.3.1.8) - The Label Standard Version  
should be 4 to represent the current level of ANSI X3.27.

HDR1D001

CALS0100010001000100 93260 93260 000000DECFE11A

Label Identifier: HDR1

File Identifier: D001

File Set Identifier: CALS01

File Section Number: 0001

File Sequence Number: 0001

Generation Number: 0001

Generation Version Number: 00

Creation Date: 93260

Expiration Date: 93260

File Accessibility:

Block Count: 000000

Implementation Identifier: DECFE11A

HDR2D0204800260

00

Label Identifier: HDR2

---

Recording Format: D  
Block Length: 02048  
Record Length: 00260  
Offset Length: 00

<<<< PART OF LOG FILE REMOVED HERE >>>>

\*\*\*\*\* Tape Mark \*\*\*\*\*

##### End of Volume CALS01 #####

##### End Of Tape File Set #####

Deallocating /dev/rmt0...

Tape Import Process terminated with 0 error(s), 0 warning(s),  
and 1 note(s).



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## 9.3 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Tue Sep 21 16:16:52 1993

MIL-STD-1840A File Set Evaluation Log

File Set: Set020

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: CUBIC DEFENSE SYSTEMS INC. 9333 BALBOA AVE. SAN DIEGO, CA 92123  
FSCM 94987

srcdocid: 147345

srcrelid: NONE

chglvl: 3,3,19930308

dteis: 19770324

dstsys: AD/YI

dstdocid: NONE

dstrelid: NONE

dtetrm: 19930917

dlvacc: A011R, E010R

filcnt: R7

ttlcls: UNCLASSIFIED

doccls: UNCLASSIFIED

doctyp: Document/Drawing List

docttl: ADHESIVE

Found file: D001R001

Extracting Raster Header Records...

Evaluating Raster Header Records...

srcdocid: DL147345

94987 C

00010001UMEAHN

001

dstdocid: NONE

txtfilid: NONE

figid: NONE

srcgph: NONE

doccls: NONE

rtype: 1

rorient: 000,270  
rpelcnt: 002048,002560  
rdensty: 0200  
notes: NONE

Saving Raster Header File: D001R001\_HDR  
Saving Raster Data File: D001R001\_GR4

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Saving Raster Header File: D001R007\_HDR  
Saving Raster Data File: D001R007\_GR4

Evaluating numbering scheme...  
No errors were encountered during numbering scheme evaluation.  
Numbering scheme evaluation complete.

Checking file count...  
No errors were encountered during file count verification.  
File Count verification complete.

No errors were encountered in Document D001.

Found file: D002  
Extracting Document Declaration Header Records...  
Evaluating Document Declaration Header Records...

srcsys: CUBIC DEFENSE SYSTEMS INC. 9333 BALBOA AVE. SAN DIEGO, CA 92123  
FSCM 94987  
srcdocid: 147348  
srcrelid: NONE  
chglvl: 3,3,19930308  
dteis: 19770324  
dstsys: AD/YI  
dstdocid: NONE  
dstrelid: NONE  
dtetrn: 19930917  
dlvacc: A011R, E010R  
filcnt: R6  
ttlcls: UNCLASSIFIED  
doccls: UNCLASSIFIED  
doctyp: Document/Drawing List  
docttl: GROMMET ASSY

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

Evaluating numbering scheme...

---

No errors were encountered during numbering scheme evaluation.  
Numbering scheme evaluation complete.

Checking file count...

No errors were encountered during file count verification.

File Count verification complete.

No errors were encountered in Document D002.

Found file: D003

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: CUBIC DEFENSE SYSTEMS INC. 9333 BALBOA AVE. SAN DIEGO, CA 92123  
FSCM 94987

srcdocid: 217021

srcrelid: NONE

chglvl: 5,5,19930309

dteisu: 19901220

dstsys: AD/YI

dstdocid: NONE

dstrelid: NONE

dtetrn: 19930917

dlvacc: A011R, E010R

filcnt: R1

ttlcls: UNCLASSIFIED

doccls: UNCLASSIFIED

doctyp: Document/Drawing List

docttl: SCREW ASSY, CAPTIVE

Found file: D003R001

Extracting Raster Header Records...

Evaluating Raster Header Records...

srcdocid: DL217021

94987 E

00010001UMEEHN

001

dstdocid: NONE

txtfilid: NONE

figid: NONE

srcgph: NONE

doccls: UNCLASS

rtype: 1

rorient: 000,270

rpelcnt: 006992,004600

rdensty: 0200

notes: NONE

Saving Raster Header File: D003R001\_HDR

Saving Raster Data File: D003R001\_GR4

Evaluating numbering scheme...

No errors were encountered during numbering scheme evaluation.

Numbering scheme evaluation complete.

Checking file count...

No errors were encountered during file count verification.

File Count verification complete.

No errors were encountered in Document D003.

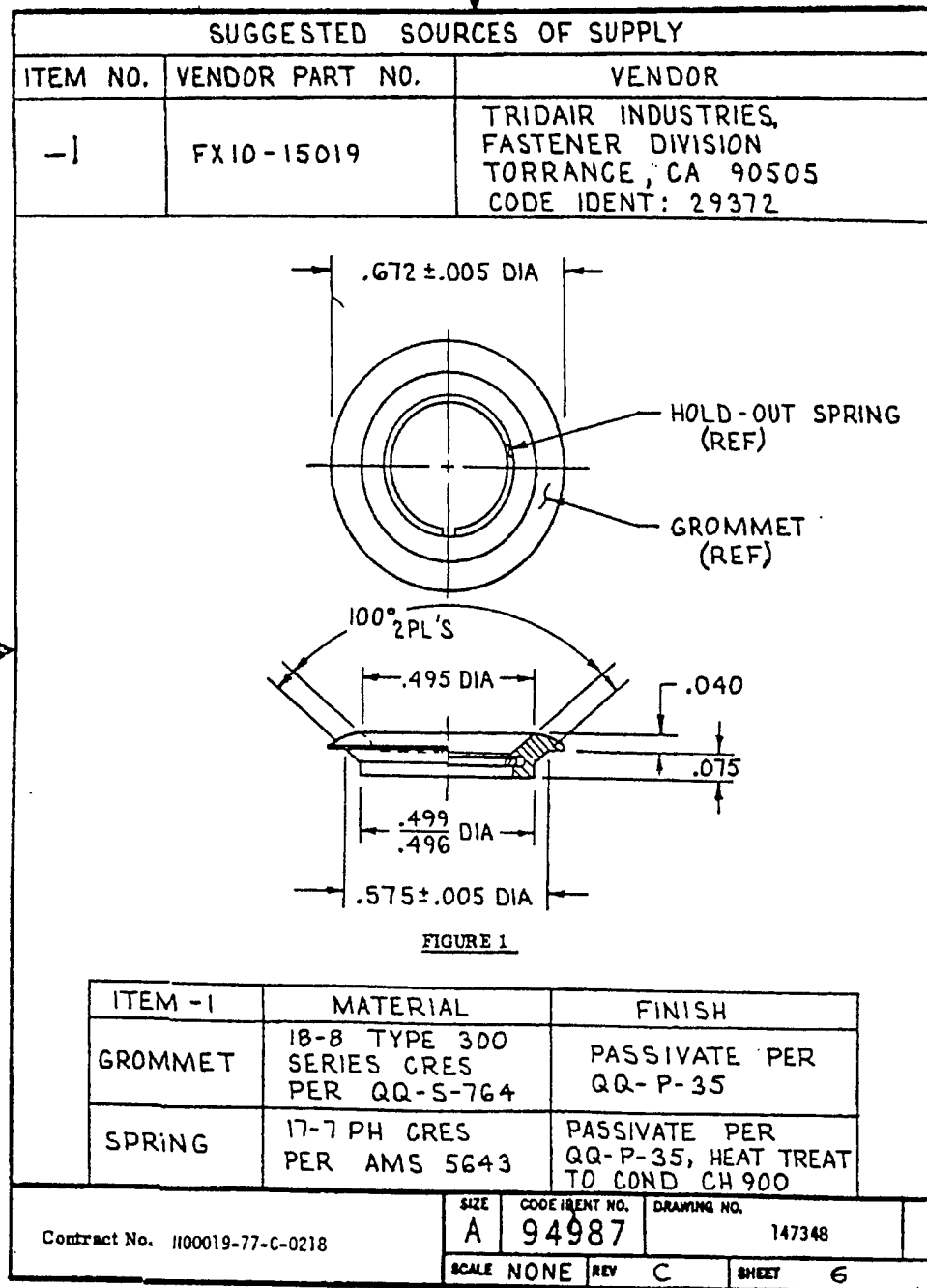
No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

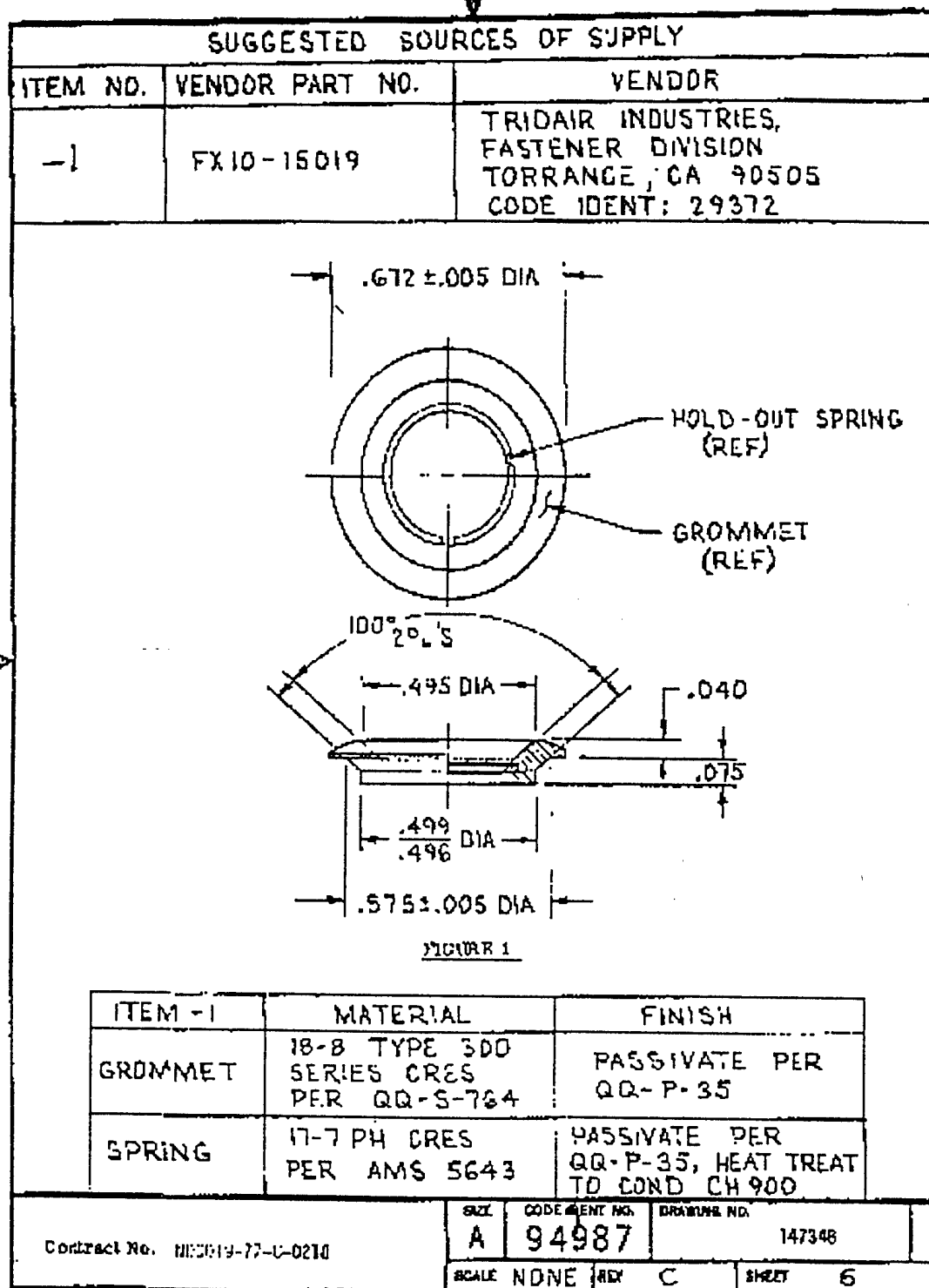
## 10. Appendix B - Detailed Raster Analysis

### 10.1 File D002R006

#### 10.1.1 Output HiJaak Pro



## 10.1.2 Output G42TIFF/IslandPaint



### 10.1.3 Output Preview

